



Aedes (Ochlerotatus) vexans (Meigen, 1830)

Floodwater mosquito

NZ Status: Not present – Unwanted Organism



Photo: 2015 NZB, M. Chaplin, Interception 22.2.15 Auckland

Vector and Pest Status

Aedes vexans is one of the most important pest species in floodwater areas in the northwest America and Germany in the Rhine Valley and are associated with *Ae. sticticus* (Meigen) (Gjullin and Eddy, 1972; Becker and Ludwig, 1983).

Ae. vexans are capable of transmitting Eastern equine encephalitis virus (EEE), Western equine encephalitis virus (WEE), SLE, West Nile Virus (WNV) (Turell et al. 2005; Balenghien et al. 2006). It is also a vector of dog heartworm (Reinert 1973).

In studies by Otake et al., 2002, it could be shown, that *Ae. vexans* can transmit porcine reproductive and respiratory syndrome virus (PRRSV) in pigs.

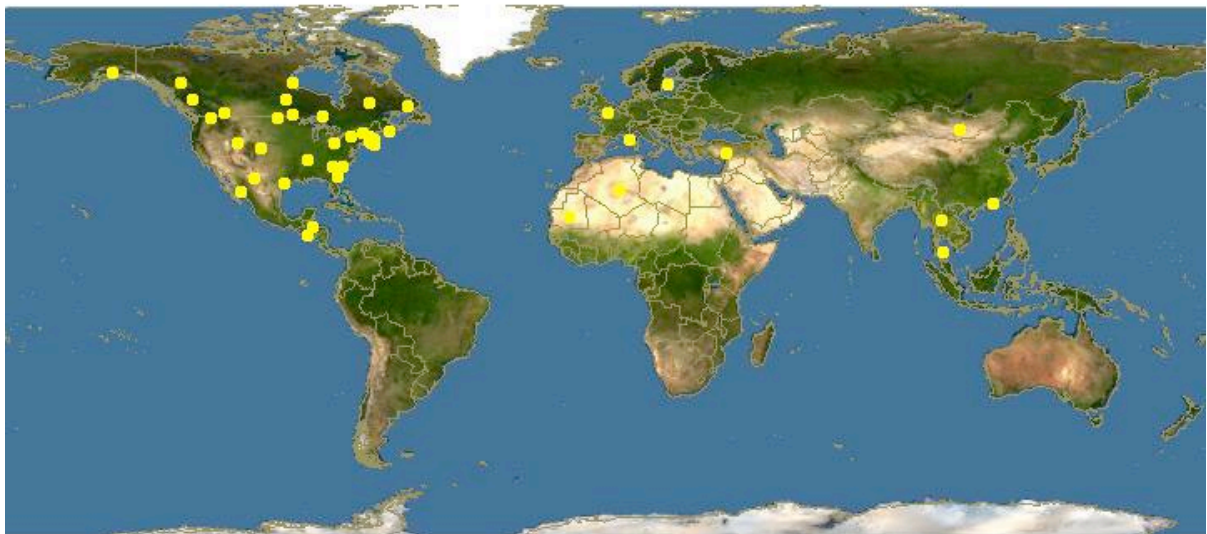
Geographic Distribution

Originally from Canada, where it is one of the most widely distributed species, it spread to USA and UK in the 1920's, to Thailand in the 1970's and from there to Germany in the 1980's, to Norway (2000), and to Japan and China in 2010. In Australia *Ae. vexans* was firstly recorded 1996 (Johansen et al 2005).

Now *Ae. vexans* is a cosmopolite and is distributed in the Holarctic, Orientalis, Mexico, Central America, Transvaal-region and the Pacific Islands.

More records of this species are from:

Canada, USA, Mexico, Guatemala, **United Kingdom**, France, **Germany**, Austria, Netherlands, Denmark, **Sweden** Finland, **Norway**, Spain, Greece, Italy, Croatia, Czech Republic, Hungary, Bulgaria, Poland, Romania, Slovakia, Yugoslavia (Serbia and Montenegro), Turkey, Russia, Algeria, Libya, South Africa, Iran, Iraq, Afghanistan, Vietnam, Yemen, Cambodia, China, **Taiwan**, Bangladesh, Pakistan, India, Sri Lanka, **Indonesia** (Lien et al, 1975; Lee et al 1984), Malaysia, **Thailand**, Laos, Burma, Palau, Philippines, Micronesia, New Caledonia, Fiji, Tonga, Samoa, Vanuatu, Tuvalu, New Zealand (Tokelau), **Australia**.



This map denotes only the country or general areas where this species has been recorded, not actual distribution
http://eol.org/data_objects/21086618

Incursions and Interceptions

Ae. vexans has been intercepted in New Zealand on the 22 February 2015 at Menzies Auckland Airport.

Taxonomy

Aedes vexans Meigen, 1830 (Culex) Berlin, Germany (MNHP) belonged to the subgenus *Aedimorphus* (Theobald) until 2009.

Synonyms:

Culex parvus (Macquart, 1834)

Culex articulatus (Rondani 1872)

Culex malariae (Grassi, 1898)

Culex sylvestris (Theobald, 1901)

Culex montcalmi (Blanchard, 1905)

Culicada minuta (Theobald, 1907)

Culicada eruthrosops (Theobald 1910)

Culex sudanensis (Theobald, 1911)

Culex niger (Theobald, 1913)

Culex euochrus (Howard, Dyar & Knab, 1917)

Morphology

Adult females are medium sized with a dark proboscis and dark femura. The tarsi are banded and the pronotum shows curved yellow scales, mesonotum clothed with bronze scales, wing scales brownish black with white scales at the base. (Gjullin and Eddy, 1972) The first tergite has dark and pale scales intermixed, tergites II-VI are dark with basal white band and basolateral patches (Carpenter and La Casse, 1955).

Habits and Habitat

They are found in open prairies, in forests and they invade cities (Rempel, 1950).

Males are accumulating in evenings with high humidity approx. 2 m over the ground and move up and down, creating a specific sound to attract females and mate in mid-air.

Ae. vexans females are multi-brooded floodwater breeders and have been observed breeding in stagnant shallow pools, exposed to direct sunlight over the summer months. After a blood meal 100 eggs are laid separately in damp grass, which hatch after being flooded by oxygen poor water above 10 degrees Celsius (the eggs do not float) Gjullin et al, 1950. The larvae can hatch a few days after oviposition (Iyengar, 1965 in Lee et al., 1984) or if desiccated, survive for three years.

Bottom feeding immatures (Aly, 1983) are found in unshaded fresh water flood pools

in secondary scrub, but have also been collected in ditches, swamps, rice fields, and elephant foot prints. Habitats usually have little aquatic vegetation or algae.

Larvae occur between March and early October, whereas adults can be encountered from April to October (Nielsen and Rees, 1961).

The long living females are vicious night biters and readily feed on man and cattle (Rempel, 1953), fortunately, they tend to bite only within two very narrow time periods - immediately after dark and again immediately before dawn. The rest of the time *Ae. vexans* hides within the vegetation.

As they are good flyers and can fly nearly 15-20 miles near ground level (Gjullin, 1972, Brust, 1980) from their larval production sites if conditions are right, breeding sites can occur far away from the origin. This species is not much affected by cold temperatures and will breed even during the winter months if given the opportunity.

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